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ABSTRACT

Preservice teachers' beliefs about effective teachers were examined with the repertory grid technique. Second- and fourth-year preservice teachers (N=22) were randomly selected to participate in a computerized repertory grid exercise. The computer program led the subjects through a series of steps that allowed them to compare and contrast the characteristics of teachers that they had identified. Subjects' responses were factor-analyzed by the computer program. Students were then given a chart that summarized their ideas about characteristics of good teachers and were asked to complete a questionnaire about their interpretations of this summary. Some qualitative differences between the responses of second- and fourth-year students are reported. Implications for further research are discussed. (Author/IAH)

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Characteristics and Constructs: Prospective Teachers'
Descriptions of Effective Teachers

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RUNNING HEAD: Effective Teachers

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Abstract

Preservice teachers' beliefs about effective teachers were examined with the repertory grid technique. Twenty-two 2nd-year and 4th-year preservice teachers were randomly selected to participate in a computerized repertory grid exercise. The computer program led the subjects through a series of steps that allowed them to compare and contrast the characteristics of teachers that they had identified. Subjects' responses were factor-analyzed by the computer program and students were (a) given a chart that summarized their ideas about characteristics of good teachers, and (b) asked to complete a questionnaire about their interpretations of this summary. Some qualitative differences between the responses of second-year and fourth-year students are reported. Implications for further research are discussed.

Characteristics and Constructs: Prospective Teachers'

Descriptions of Effective Teachers

Research on teachers' thought processes is a relatively new area of study. Interest in research on teacher cognitions developed in the 1970s. These studies fell under three broad areas: (a) teacher planning, (b) teachers' interactive thoughts and decisions, and (c) teachers' theories and beliefs (Clark & Peterson, 1986).

The exploration of teachers' theories and beliefs is probably the newest area of interest in this domain. Researchers have been interested in teachers' theories about reading (Duffy, 1977), conceptions of their role (Munby, 1983), and beliefs about the curriculum (Bussis, Chittenden & Amarel, 1976). They have also examined the structure and content of teachers' practical knowledge (Elbaz, 1981).

The methods of inquiry used in cognitive studies have included thinking aloud, stimulated recall, policy capturing, journal keeping, and the repertory grid technique. Usually, these methods were complimented with the use of naturalistic observations, interviews, and descriptive reports of the context. This study used the repertory grid technique.

Kelly (1955) developed the repertory grid

interview as part of his "personal construct psychology". He postulated that individuals build a mental model that contains their construction of the world and guides their thinking and behavior. Moreover, by virtue of the changing nature of reality, individuals continuously alter and update this model to improve future decision making. More specifically, a construct in Kelly's theory is defined as "a way in which two elements are similar and contrast with a third" (Kelly, 1955, p.61).

Munby (1982) used the repertory technique to study the principles (beliefs and repertories of understandings) that lead teachers to plan and to teach in a particular fashion. Olson (1981) investigated teachers' theories of teaching by examining how science teachers think about, evaluate, and classify teacher and student behavior. Further, Morine-Dersheimer (1983) studied teacher thinking, combining the results from repertory grid interviews with data collected from stimulated recall interviews. Another example of the utilization of the technique was reported by Boei, Corporaal, and van Hunen (1989), who explored student teachers' notions of good teaching and how these notions influenced their actual teaching behaviors.

The majority of studies looking at teachers'

theories and beliefs have focused on experienced teachers. Relatively little attention has been given to the beliefs of preservice teachers. For example, in a recent issue of the Journal of Teacher Education addressing the theme "Teacher Beliefs" only 4 of 16 articles identified in the ERIC Database (Stewart, 1990) dealt with beliefs of prospective teachers. The purpose of this study was to examine preservice teachers' concepts about effective and ineffective teachers using a computerized version of the repertory grid interview, called FLEXIGRID (Keen, 1988). This was part of a larger study evaluating three tasks to determine their usefulness in revealing prospective teachers' conceptions of effective teaching (Morine-Dershimer, 1990). The other two tasks were: Critiquing a videotape of a teaching episode (Mostert & Nuttycombe, 1990); and developing a concept map on effective teaching (Saunders & Tankersley, 1990).

The first section of this paper describes the method of the study, providing information on the participants, and the procedures followed. The next section describes the results of the study. We conclude with a discussion of the findings and implications for further research.

Method

Participants

The subjects in this study were second-year and fourth-year students enrolled in the five-year teacher education program at the University of Virginia (UVA). Upon completion of the program, students are awarded two degrees --a Bachelor of Arts degree from the College of Arts and Sciences, and a Master's degree from the Curry School of Education.

The program is organized around the theme "teacher as decision maker." Education courses begin in the students' second year of college, and each year students have a field placement. Field experiences gradually expand from observation, to tutoring, to teaching a few isolated lessons, then a two-week unit, then a semester of student teaching. Three program threads developed across all courses address multicultural education, special education, and technology in education.

Twenty-two subjects were randomly selected from class rosters of second-year students (taking the introductory education course) and fourth-year students (taking a generic methods course and teaching isolated lessons), stratified by type of certification sought. Hence, subjects for the FLEXIGRID exercise comprised

four groups, combining year in college (i.e., 2nd and 4th year) and certification area (i.e., elementary and secondary). Table I depicts the distribution of subjects across groups.

Insert Table I about here

Procedure

The FLEXIGRID computer program was used in this segment of the larger study, whose purpose was to examine changes in conceptions of teaching as students progressed through the five-year teacher education program at UVA. This computer program allows respondents to examine their thinking about a set of chosen topics. In this particular exercise, subjects were asked to explore characteristics of good teachers, beginning by identifying teachers they knew.

Characteristics of "good teachers" were established by the subjects through their identification of six teachers who taught them in elementary, middle school, high school, or college. Classroom teachers who had been observed during the subjects' field placements could also be used. For contrastive purposes, subjects were asked to include at

least one teacher in their list whom they believed to be less effective.

The FLEXIGRID program led the subjects through a series of steps that allowed them to compare and contrast the teachers they had selected by identifying characteristics that differentiated among them. See a sample of this process in Figure 1. Finally, the subjects were asked to identify the typical, the ideal and the worst teacher in their selected sample.

Insert Figure 1 about here

Immediately after completing and exiting the program, the subjects' responses were factor-analyzed by the computer and students (a) were given a chart that summarized their ideas about important characteristics of good teachers (see Figure 2), and (b) were then asked to complete a questionnaire about their interpretations of this summary.

Insert Figure 2 about here

In figure 2 each positive-negative pair of teacher characteristics constitutes a "construct". Component 1 includes four constructs and Karen (the Ideal Teacher)

is rated very highly on the composite of the four constructs, while Floyd (the Worst Teacher) is rated very negatively on this composite.

The FLEXIGRID program provides a variety of options for analysis of input as well as for procedures for generating input. As we used it, subjects' responses were factor analyzed to yield two components, each consisting of several constructs. The first component typically differentiated strongly between the ideal teacher and the worst teacher (note long lines in Figure 2). The second component typically included a set of constructs that did not differentiate very clearly between the ideal and worst teachers, although the ideal teacher was rated on the positive side (note shorter lines in component two of Figure 2).

The questionnaire asked subjects to explain how the constructs in each component were related to each other as qualities or characteristics they associated with good teaching. These comments were sometimes helpful in clarifying the meanings that subjects attached to the terms they used to characterize teachers.

In keeping with a qualitative approach (Lincoln & Guba, 1985), we used an emergent design to analyze both the charts and the questionnaire responses. A major

category system was developed to describe these responses, then refined through a series of team meetings with participating members of the larger research project, so that one set of categories could be used to code responses from the three different data collection tasks. This overall category system is presented in Figure 3.

Insert Figure 3 about here

Once categories were established, the content analysis process involved: (a) the independent coding of the data by two researchers, (b) the analysis of similarities and differences in coding between the researchers, and finally (c) the establishment of the definitive classification of the responses. Until final coding was completed, the coders were not informed as to the characteristics of individual subjects (i.e., 2nd year vs 4th year, or elementary vs secondary major). Examples of actual subjects' responses are provided in the Results section.

Results

Types of Teachers Described

In the introduction to this task, subjects were told that they could identify and describe teachers whom they had had as students, or teachers whom they had observed in their field placements. All but two included several different types of teachers in the set that they used to generate characteristics of effective teachers. Twenty-one of the 22 subjects included their high school teachers in their designated set, and 14 included their college teachers. Only 9 referred to teachers they had observed in the field, and only 7 described teachers they had had in elementary school. Fourth-year students, compared with 2nd-year students, were more apt to identify college teachers and teachers from their field placements. Differences between elementary and secondary majors on this aspect of response to the FLEXIGRID exercise were negligible.

Components of Effective Teaching

Almost all subjects (19 of 22) produced "components" of effective teaching that included constructs from more than one of the major categories. The most common type of variation involved inclusion of constructs that referred to both instructional and

social context characteristics. An example of this type of variation within a single component is: "good pace - too fast, answers questions - ignores class, knowledgeable - adequate, helpful - not helpful." This subject described her component as follows:

"The (effective) teachers were very knowledgeable in their subject areas, and because of this they could pace their classes well and be able to answer students' questions in a satisfactory manner. The (other) teachers tended to stand in front and lecture without paying much attention to whether the class was understanding or not. They didn't seem to be experts in their subject, so they didn't answer questions very well."

Only four subjects generated components that included constructs from all three major categories. An example of such an inclusive component is: "student morality - straight instruction, varied questions - few/flat questions, mixed media - few materials, loves students - uninterested." This component was explained as follows:

"The more effective teachers have a genuine love for their students and want them to grow both morally and intellectually. Also the more effective teachers used not only several levels of questions, but they

also used several forms of instructional aids (slides, music, overheads, etc.). The less effective teachers give the impression that they are just there for a job, not because they are interested in the welfare of the students. Perhaps as a result of this, they are less concerned with how the information is presented as long as they state it once."

Three subjects developed components that focused on a single major category. An example that focused exclusively on social context characteristics (personal qualities and relationship to students) noted these constructs: "likes topic - disgusted with topic, genuine concern - annoyed, approachable - unapproachable, personable - serious." This component was described in the following terms:

"I feel that if a teacher is genuinely concerned, then students are more apt to feel that he/she is approachable, thus seeming more personable. If a teacher is disgusted with the topics covered, and annoyed by the course, then the student is going to feel that he/she is unapproachable."

Not all subjects gave useful explanations of their components. Some less informative examples include: "all these are characteristics of teachers who I regard highly;" "these are characteristics of teachers that I

enjoyed and learned a great deal from;" "all of these characteristics relate in some way, but they are not identical."

No differences were noted between second-year and fourth-year students, or between elementary and secondary majors in their tendency to produce components that included a variety of constructs, or in their tendency to provide helpful explanations of the relationship among constructs in a component.

Types of Constructs

For subjects as a whole, responses coded as Social Context predominated, and emphasized constructs reflecting both Personal Qualities of teachers (e.g., "entertaining-boring", "flexible-inflexible", "stern-lax", "fair-unfair", "very intelligent-less intelligent", "likes topics-disgusted with topics") and teachers' Relationships with Students (e.g., "approachable-unapproachable", "loves students-dislikes students", "respect for students-patronizing", "friendly-distant", "caring-uncaring", "communicates with students-poor communication").

For the category labeled Instruction, responses were more often related to the sub-category Instructional Processes than they were to Classroom

Management. Instances of constructs coded as Instructional Processes were "innovative-undemanding", "intuitive-vague", "good pace-too fast", "varied methods-same methods", "varied methods-repetitious", "fair evaluation-unfair evaluation".

The majority of constructs coded as Curriculum focused on the subcategory of Student Outcomes rather than on Content/Materials. Such responses included "stimulates thought-doesn't stimulate thought", "student morality-straight instruction", and "encourage creativity-discourage ideas".

Subjects in this study were grouped in a way that allowed us to examine responses according to either year in college (2nd or 4th year) or certification area (e.g., elementary or secondary). In terms of year in

Insert Table II about here

college (see Table II), both 2nd and 4th-year students had most constructs categorized as dealing with Social Context, followed by Instruction and Curriculum respectively. While the first component differentiated more clearly between teachers than the students perceived are more and less effective, the patterns of categorical emphasis were about the same for both first

and second components. A similar pattern was noted when responses were analyzed by certification area.

Sub-group differences in categorical emphasis became evident only after we examined the data for first-component constructs alone across both year in the program and major (see Table III). Here, most of the responses made by 2nd-year elementary majors were categorized as related to Instruction, although Social Context was a strong second. This represented a change

Insert Table III about here

in the general pattern of categorical emphasis.

In addition, elementary majors in the 2nd year generated constructs related to Instruction that were classified as Instructional Processes. Some of these constructs included "good pace-too fast", "various methods-patterned", and "mixed media-few materials". Fourth-year students with the same major provided a more balanced distribution of constructs between Instructional Processes and Management. (e.g., "clear objectives-plans as goes", "lax-stern", "goals clearly defined-goals ambiguous", "organized-not organized").

A slightly different pattern of response was also noted for 2nd-year compared with 4th-year secondary

education majors. Second-year students used more generic terms (e.g., "effective-ineffective", "creative-static", "strict-lenient", "clear-confusing") while their counterparts in the 4th year gave more specific descriptions (e.g., "adapts to student level-doesn't adapt to student level", "homework/tests as a regular routine-irregular monitoring", "requires attendance-does not require attendance").

Comparison to Other Data Collection Tasks

The general pattern of responses to the FLEXIGRID exercise showed the heaviest emphasis on Social Context, followed by Instruction, and then Curriculum as aspects of importance for effective teaching. Two other groups of students in the same teacher education program were randomly assigned (using the same stratification design as this study) to two other data collection tasks. One group of students (n=24) developed concept maps to depict characteristics of effective teachers, and the other group (n=24) observed and critiqued the teaching displayed in a videotaped lesson.

Subjects who developed concept maps exhibited patterns of emphasis very similar to responses to the FLEXIGRID exercise, with many references to social

context, followed by instruction, and then curriculum (Saunders & Tankersley, 1990). Subjects who observed and critiqued the videotaped lesson exhibited a rather different pattern of response, giving heaviest emphasis to instruction, followed by curriculum, and finally social context (Mostert & Nuttycombe, 1990).

Discussion

In general, respondents in this study generated mainly characteristics of good teachers related to Social Context (specifically Personal Qualities of the teacher and Relationship with Students) while less attention was devoted to Instruction, and very little to Curriculum. We can speculate that the high frequency of Social Context responses may be related to the instructions of the FLEXIGRID exercise. That is, the instructions directed the students to focus on particular teachers whom they knew, thus personal qualities may have been uppermost in their minds.

Similarly, the same explanation could account for the low frequency of responses coded as Curriculum. Directions focused student attention on the teachers rather than on what they taught. Hence, the participants may have ignored content or curriculum issues. The fact that students who observed and

critiqued a videotaped lesson (in which they could hear specific content being discussed) emphasized curriculum aspects of teaching more heavily suggests that features of the data collection task influenced this result.

Interestingly, this lack of emphasis on curriculum in the FLEXIGRID exercise contrasts with the results from Kelly repertory grid interviews reported by Munby (1983). He found that teachers' theories were linked to variations in curriculum implementation. However, Munby examined experienced secondary teachers' theories of their own roles. Moreover, Munby (1983) found that his subjects emphasized constructs mostly related to their students (i.e., "student learning and developmental goals", "student involvement", and "student needs and limitations"). This was certainly not the case in our study with preservice teachers, since they hardly referred to constructs dealing with students. In thinking about their own teaching, it seems reasonable that teachers would give more attention to the curriculum and to their students.

It was not until responses to the FLEXIGRID exercise were analyzed across year in college and certification area that differences were noted in patterns of response. Fourth-year elementary students had frequent responses coded as Personal Qualities

under Social Context, while, 2nd-year elementary students were more concerned with issues related to Instructional Processes.

A possible explanation for this occurrence could be that elementary and secondary majors begin their education courses with two different views of what constitutes effective teaching, but by their fourth year their conceptions may change and become more similar. This could occur due to the fact that elementary and secondary majors in this teacher education program enroll in the same core education classes and share many of the same experiences. Hence, they may eventually develop a more common viewpoint of effective teachers. However, a longitudinal approach would be needed to confirm this hypothesis.

Another potential explanation for these findings is that students in early stages of the program (e.g., 2nd-year students) focus their attention on technical aspects of the teaching process (e.g., Instructional Processes) to fulfill their need to build a pedagogical knowledge base. Meanwhile, more experienced preservice students (e.g., 4th-year students) are concerned with teacher traits (e.g., Personal Qualities) that would eventually enable them to teach actively to their students. Although this explanation is speculative it

would be an interesting issue to address in a future study. Previous studies support the notion that effective teachers exhibit teacher-directed teaching styles (McShane & Cox, 1989; Nowacek & Saunders, 1989; Nowacek, McKinney, & Hallahan, 1990). However, there is a paucity of studies using a developmental perspective on preservice teachers' thought processes and their relationship to effective teaching behaviors. Therefore, a more informative approach to research would be to contrast beginning versus advanced preservice teachers' conceptions of effective teachers, and the relationship of these conceptions to actual teaching behaviors in the classroom.

As indicated in the results section, for both elementary and secondary majors, 2nd-year students used more general types of responses and focused primarily on one subcategory under the major categories. Conversely, 4th-year students' responses were oftentimes more specific and more evenly distributed across the subcategories.

We can speculate that, once again, these findings are related to the nature of the five-year program. For example, at the time of this study, 2nd-year students were completing their first field experience (classroom observation). Fourth-year students had completed four

field experiences by this point (including tutoring and teaching isolated lessons) and had taken a minimum of six education courses. Quite naturally, then, by this time they were looking at instruction and social aspects of teaching from a more balanced perspective, and their descriptions of teaching could be more specific. The fact that more 4th-year than 2nd-year students included teachers from their field placements in the set of teachers they described supports this explanation.

One interesting aspect of subjects' responses to the questionnaire was that they commented on characteristics of effective teachers from the point of view of a student. These were the types of teachers they had enjoyed and learned from. Even when subjects included teachers from their field experiences in their set of teachers described, they did not use phrases in their explanations of their descriptors that indicated that these were characteristics they hoped to exhibit as teachers themselves. There was no evidence that they saw their ideal teachers as role models. This type of response may have been influenced by the directions for the task, which encouraged them to select teachers who had taught them. However, for purposes of evaluation of the teacher preparation program, this result raises

questions about the extent to which students are beginning to perceive themselves in the role of teacher as they move through the program.

Based on data from this study of preservice teachers in the five-year teacher education program at the University of Virginia, it appears that students' conceptions of effective teachers are related to year in the program. But clearly, more studies are needed that address correlational or causal relationships between teacher thinking variables and program variables. An important aspect to be examined in such studies would be the effect of field experiences on preservice teachers' implicit theories.

From the present experience we would recommend that researchers using the FLEXIGRID computer program use a repeated measures design (or at least a pre/post-test design) to obtain data that reflect the changes over time in preservice teachers' perceptions about effective teachers. This would offer a developmental depiction of preservice teachers' notions on "ideal models" or "effective teachers" .

Similarly, we would recommend several practical suggestions for the actual administration of the FLEXIGRID computer program. First, subjects should have the opportunity to observe a demonstration on the use

of this computer program. Second, they should be provided with an opportunity to conduct a few practical trials with the computer program. These suggestions would allow the participants to familiarize themselves with the use of this instrument, and therefore help them to become acquainted with the program's language of "constructs", "components", and "ideal/worst" teachers.

Finally, it would be very valuable to schedule interviews with the respondents to have them elaborate on their ideas stated in the questionnaire that was offered immediately after they finished the exercise. These interviews would help to clarify responses that may be vague or unclear. Constructs such as "reading - science", "old - middle age", and "bad curriculum - good curriculum" are instances of vague responses we received that could be clarified through the use of interviews. In an interview a researcher may find out that some vague responses have a logical relation or particular meaning for a preservice teacher.

These changes in procedure would require more time for data collection, but they should make the data obtained more useful for purposes of program evaluation or for a clearer understanding of the cognitions of prospective teachers.

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Table I
Participants' Characteristics

<u>Group No.</u>	<u>No. Subjects</u>	<u>Year in Program</u>	<u>Major</u>
1	5	Second	Elementary
2	5	Second	Secondary
3	6	Fourth	Elementary
4	6	Fourth	Secondary

Triad (set of three teachers) for elicitation of CONSTRUCT 1

1 John
2 Raul
3 Chris

Type the numbers for the similar pair.

Can you choose two of this triad of teachers which are in some way alike and different from the third one?

Type the number of the first one in the pair and then press Enter

Then type the number of the second in the pair and again press Enter

Type the number of the first teacher in the pair?

Now that you have got one CONSTRUCT you know what to do. A CONSTRUCT can be thought of as a line along which each teacher has a place in relation to all the other teachers.

Please do not use CONSTRUCTS which do not apply to all your teachers.

An example of this would be: (for persons, not for teachers) REDHEAD -- BLOND as it is impossible to rate a person with black hair on this CONSTRUCT.

One pole must be in some sense what the other is not and they should divide your teachers into two approximately equal groups. So please try to avoid constructs where nearly all the teachers are at one end. An example might be (if rating persons)

HAS A ROLLS ROYCE --- DOES NOT HAVE A ROLLS ROYCE

Press Enter to continue

Name the poles of your CONSTRUCT number 2

Now I want you to think what you had in mind when you separated the pair from the odd one in the triad. How can you describe the two ends of the scale which discriminate John and Chris.

Notice that John and Raul will be placed at the left pole of the scale and Chris will be placed at the right pole of the scale.

Just type one or two words for each pole to remind you what you are thinking when you use this CONSTRUCT.

Left pole (1 John, 2 Raul)

- rated 1 - promote participation

Right pole (3 Chris)

rated 5 - gives lecture

promote participation gives lecture
1 2 3 4 5

* 1 John
* 2 Raul

* 3 Chris

Type the ratings for these teachers:

Paul ?
Maggie ?
Karen ?

Figure 1. Screen Samples of the Flexigrid Computer Program.

Definition of ELEMENTS: TYPICAL * terry
IDEAL + karen
WORST @ floyd

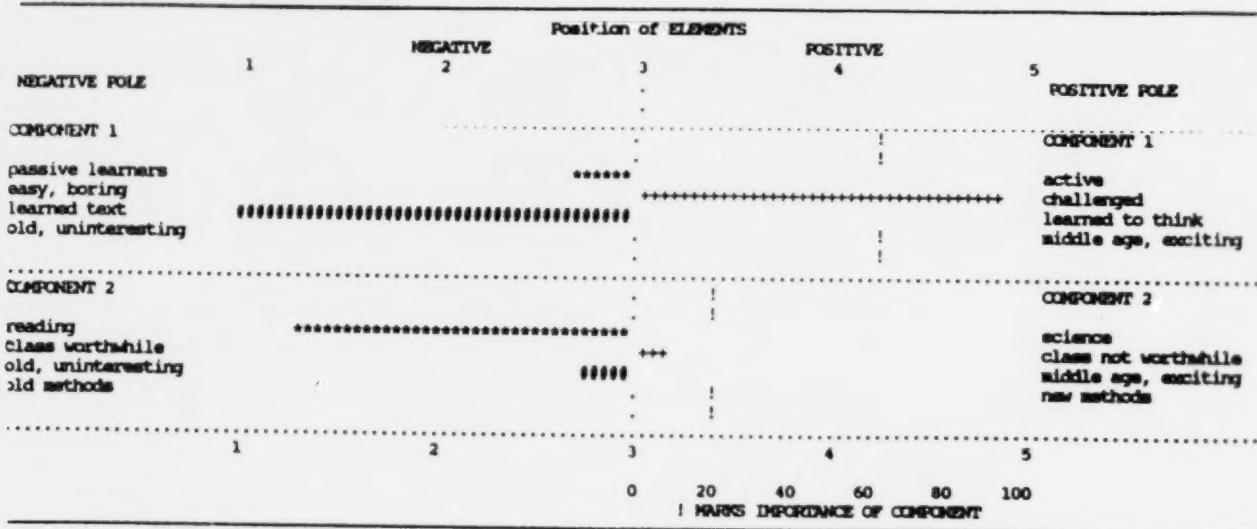


Figure 2. Sample of a Grid Print Out

**Figure 3.Category System for the
FLEXIGRID Data.**

I. Social Context:

- 1.1. Personal Qualities
- 1.2. Learned Traits
- 1.3. Relationships

II. Instruction:

- 2.1. Instructional Processes
- 2.2. Classroom Management

III. Curriculum:

- 3.1. Content/Materials
 - 3.2. Student Outcomes
-

Table II. Categorical Frequency of Constructs by Year in College

Categories:	Year in College			
	<u>2nd Year</u> (n=10)		<u>4th Year</u> (n=12)	
	Components			
	<u>1st</u>	<u>2nd</u>	<u>1st</u>	<u>2nd</u>
Social Context	20	15	29	20
Instruction	16	7	14	13
Curriculum	2	0	4	3

Table III. Categorical Frequency of 1st Component Constructs Across
Year in College and Certification Area.

Categories	Year in College/Certification Area			
	<u>2nd-Yr Elementary (n=5)</u>	<u>2nd-Yr Secondary (n=5)</u>	<u>4th-Yr Elementary (n=6)</u>	<u>4th-Yr Secondary (n=6)</u>
Social Context	8	12	12	17
Instruction	10	6	8	6
Curriculum	1	1	3	1